

HVAC OUTDOOR AIR REQUIREMENTS

1. SHOWROOM = 3224 SQUARE FEET
2. HARD PARTS = 3648 SQUARE FEET

2009 INTERNATIONAL MECHANICAL (IMC) CODE REFERENCES:
TABLE 403.3 FOR REQUIRED OUTDOOR VENTILATION AIR IN
RETAIL - "SALES/STORAGE ROOM."

SHOWROOM (SALES)

$3224 \text{ (sq.ft.)} \div 1000 \text{ (sq.ft.)} = 3.22$
 $3.22 \times 15 \text{ (persons per 1000 sq.ft.)} = 48.36 \text{ persons}$
 $(\text{CFM/person}) \times \text{persons} + \text{CFM/sq.ft.} \times \text{sq.ft.} = \text{CFM}$
 $7.5 \times 48.36 + .12 \times 3224 = 750 \text{ CFM of outside air required}$

$750 / .8 \text{ (effectiveness)} = 937 \text{ CFM}$

HARD PARTS: ("STORAGE ROOM")

$3648 \times 0.12 \text{ (CFM/per sq. ft.)} = 438 \text{ CFM of outside air required}$

$438 / .8 \text{ (effectiveness)} = 547 \text{ CFM}$

$937 \text{ (CFM)} + 547 \text{ (CFM)} = 1484 \text{ CFM}$

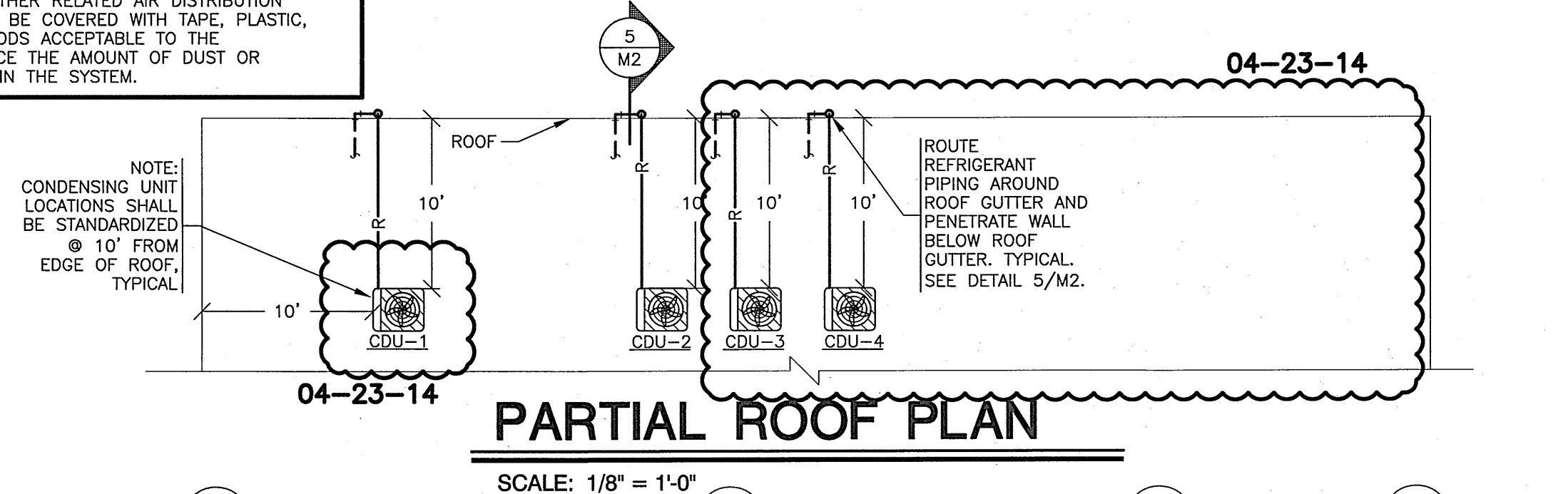
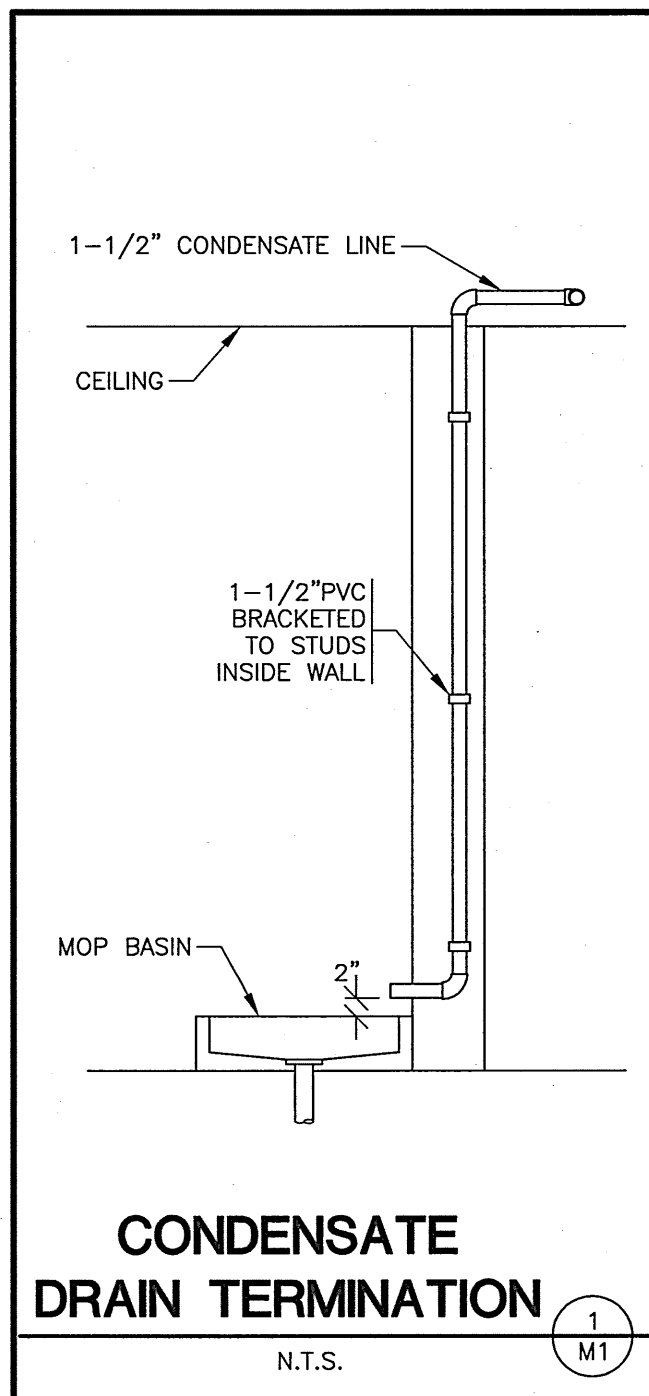
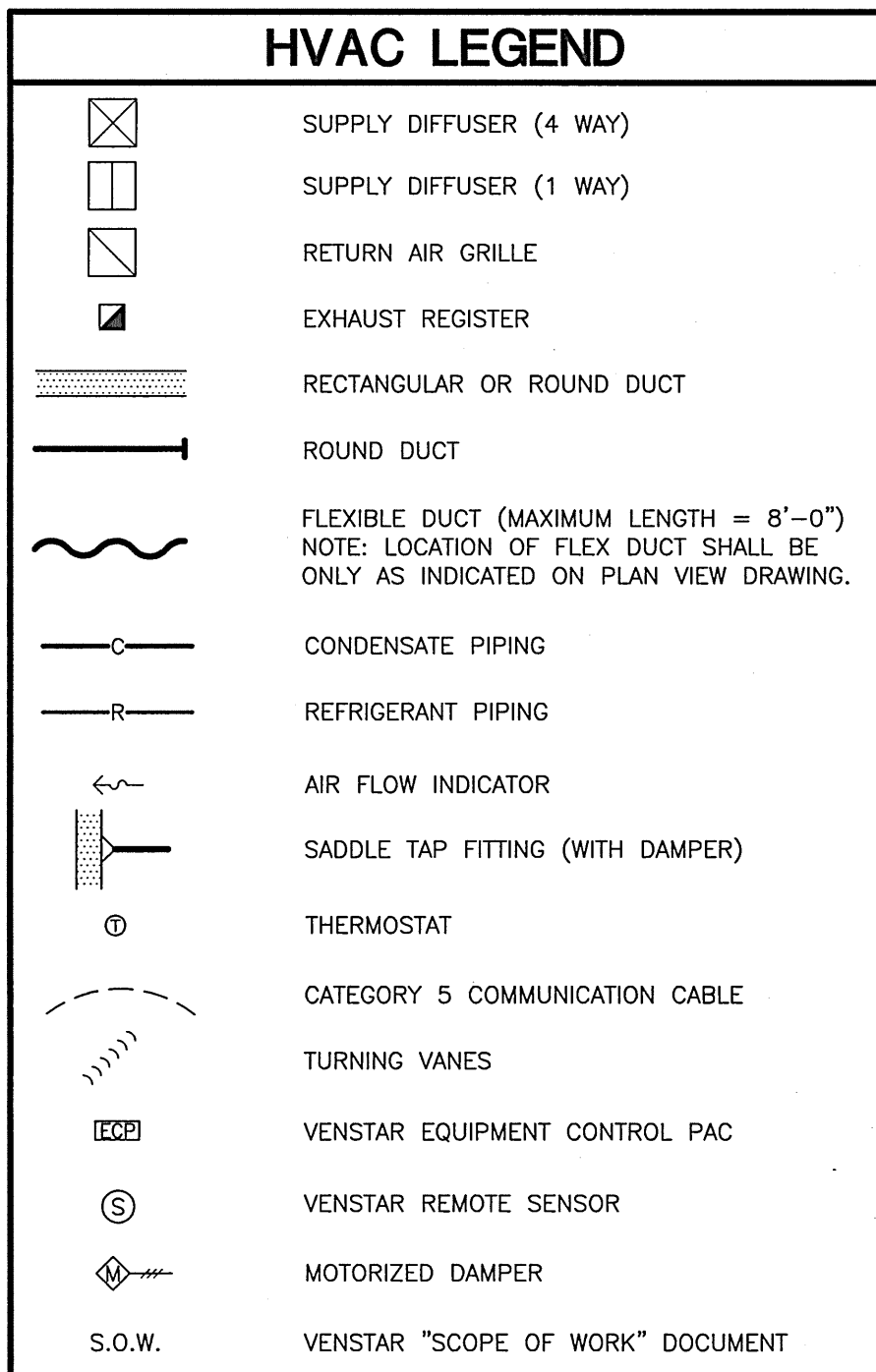
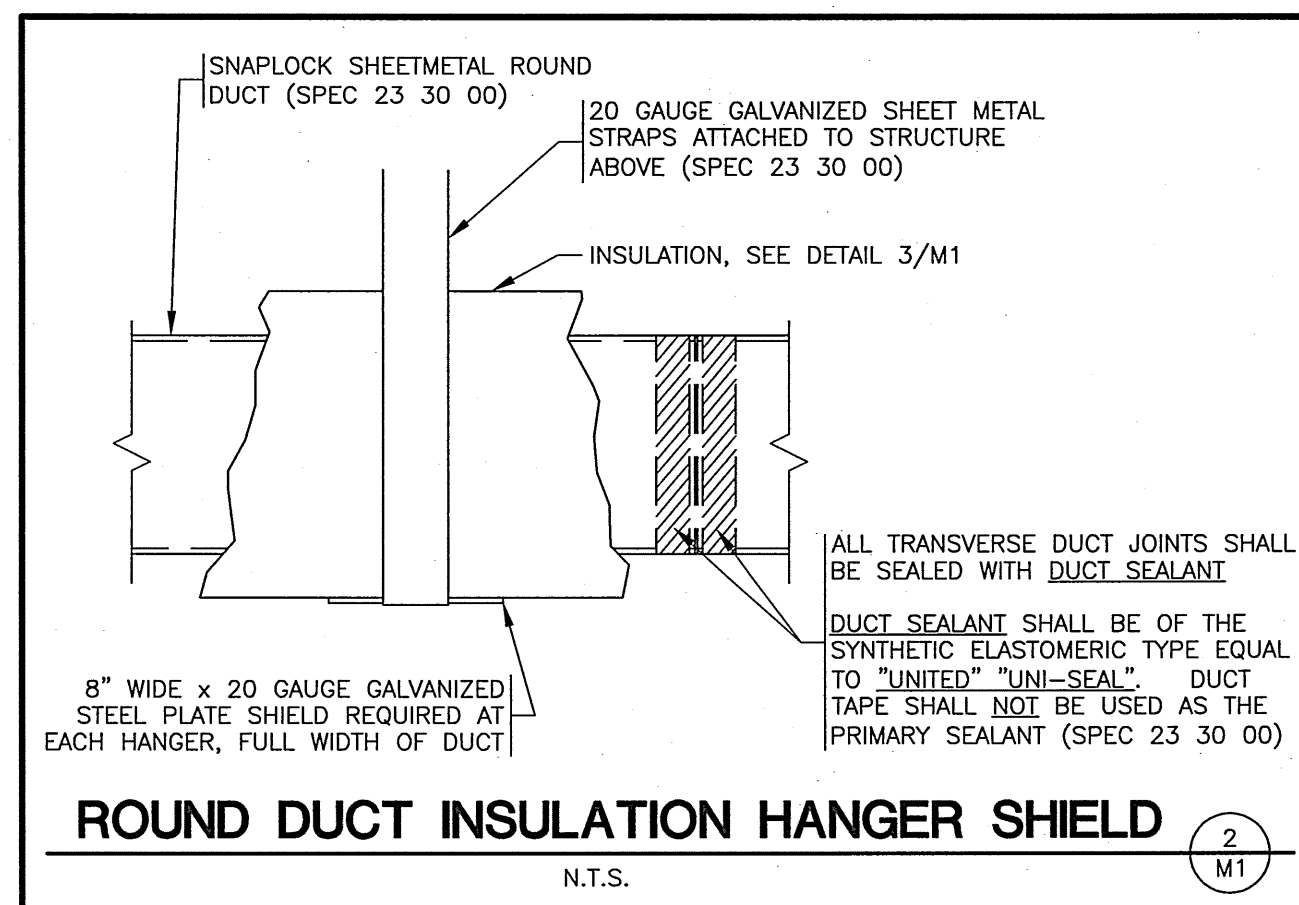
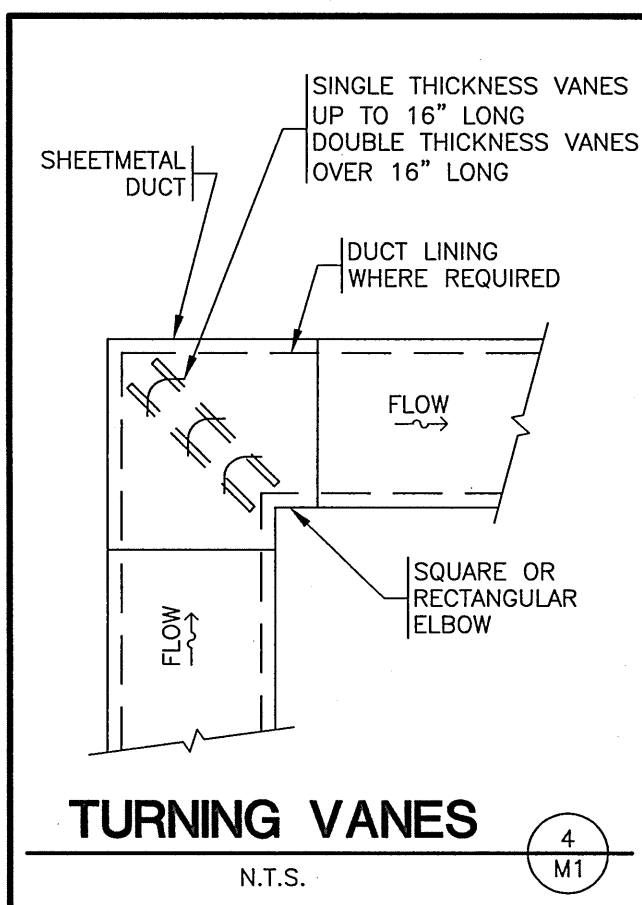
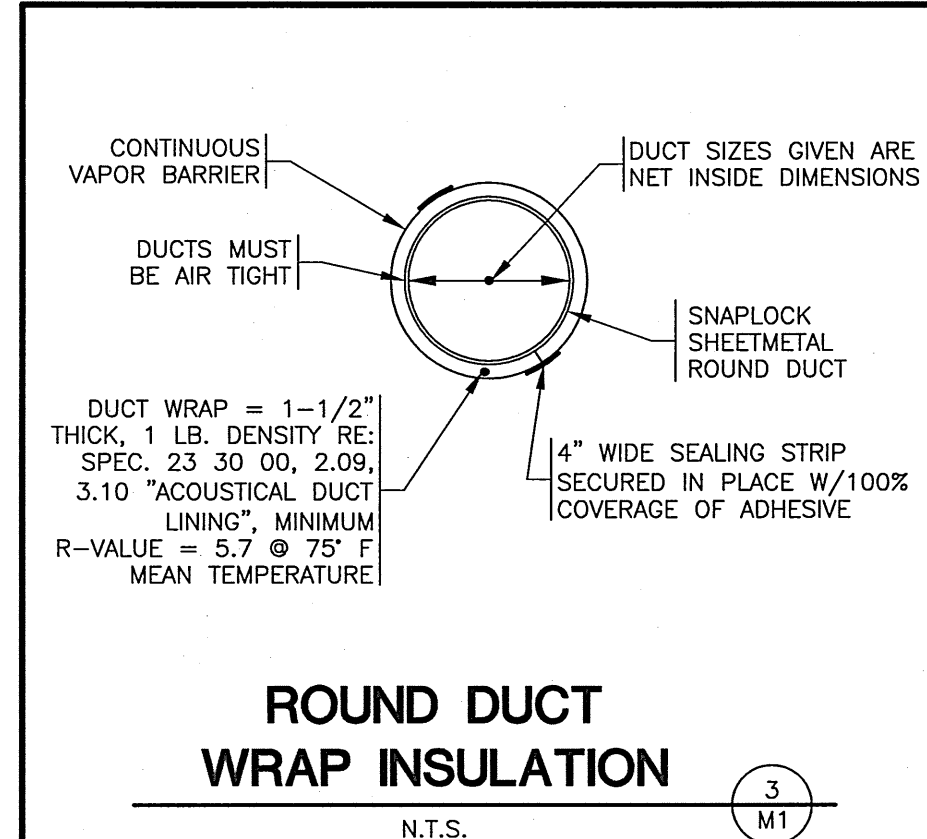
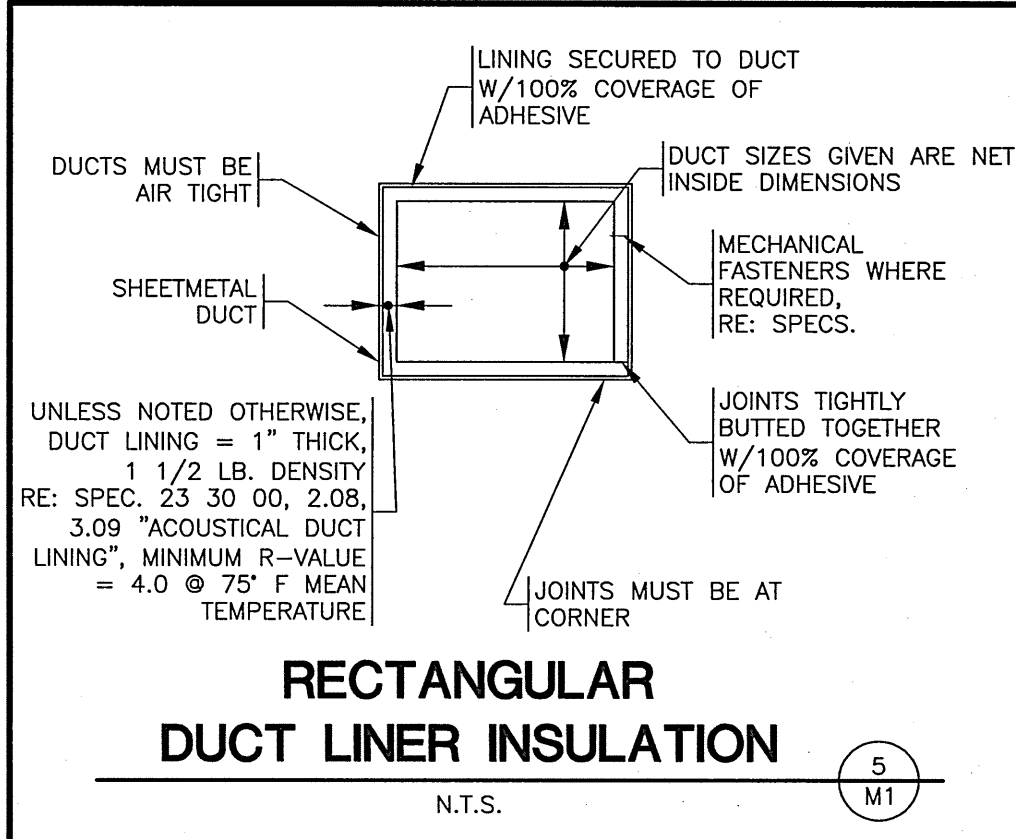
TOTAL OUTSIDE AIR MINIMUM REQUIRED BY CITY: 1484 CFM
OUTSIDE AIR SPECIFIED ON PLAN SHEET M1 = 1484 CFM

HVAC GENERAL NOTES

1. DRAWING IS DIAGRAMMATIC AND IS NOT TO BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE CODE(S) NOTED ON THE COVER SHEET.
3. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONSTRUCTION PRIOR TO SUBMITTING HIS BID. NO EXTRAS WILL BE PAID DUE TO UNANTICIPATED EXISTING CONDITIONS.
4. ALL ROOF AND WALL PENETRATIONS REQUIRED SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL SLEEVES, FLASHING, CURBS, REINFORCING ANGLES, SUPPORTING FRAMES, ETC., WHICH ARE REQUIRED UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
5. A SUBMITTAL OF ALL MATERIALS AND EQUIPMENT PROPOSED TO BE USED ON THE JOB SHALL BE PREPARED AS SOON AS POSSIBLE AFTER AWARD OF THE CONTRACT. THE SUBMITTAL WILL BE REVIEWED BY THE OWNER FOR EQUAL QUALITY AND PERFORMANCE TO THE ITEMS SPECIFIED. ALL CONTROL DEVICES SHALL BE INCLUDED IN THE SUBMITTAL.
6. THE PROPER PERFORMANCE OF THE CONTROL SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS WORK WITH THE WORK OF OTHER SUBCONTRACTORS OF THE PROJECT. COORDINATION DOES NOT MEAN "I WAS HERE FIRST"
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE AND FUNCTIONAL SYSTEM IN ACCORDANCE WITH THE INTENT OF THE PLANS, WHETHER OR NOT EVERY ELEMENT THEREOF IS SPECIFICALLY CALLED OUT.
9. DUCT DIMENSIONS ON PLANS ARE TO BE FINISHED INSIDE DIMENSIONS.
10. DUCT MATERIALS SHALL BE AS FOLLOWS:
ROUND SUPPLY AIR DUCT (SPEC 23 30 00)
RECTANGULAR SUPPLY AND RETURN AIR DUCT WORK - (SPEC 23 30 00) INSTALL TURNING VANES IN ALL ELBOWS. DO NOT SUBSTITUTE RADIUS ELBOWS.
ROUNDOUTS TO DIFFUSERS - (SPEC 23 30 00) (SEE DIFFUSER INSTALLATION DETAIL)
EXHAUST DUCT - (SPEC 23 30 00)
TRANSITIONS - SHALL CONFORM TO SMACNA STANDARDS.
11. INSULATE HVAC CONDENSATE DRAIN PIPING WITH 1/2" ARMAFLEX.
12. ALL WORK IS TO BE GUARANTEED FOR ONE YEAR UPON OCCUPANCY.
13. NO EQUIPMENT OR FIXTURE SUBSTITUTIONS (THAT ARE NOT CURRENTLY LISTED) WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER.
14. UPON COMPLETION BALANCE SYSTEMS TO AIR FLOWS SHOWN. REPORT THE BALANCING MEASUREMENTS ON THE "AS BUILT" DRAWINGS.
15. MOUNT CONDENSATE AND REFRIGERANT LINES AS HIGH AS POSSIBLE.
16. CONTROL WIRING BY HVAC CONTRACTOR, FINAL CONNECTIONS BY HVAC CONTRACTOR.
17. ALL CAULKING ON BUILDING PENETRATIONS SHALL BE A ONE-COMPONENT NON-SAG URETHANE ELASTOMERIC SEALANT. ANY CONTRACTOR WHO USED SILICONE OR ANY OTHER CAULKING WILL BE REQUIRED TO REMOVE AND REPLACE WITH A SPECIFIED SEALANT (SPEC: 07 92 00).
18. THE HVAC SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 101-7-2 and NFPA 90A "STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS".
19. ALL HVAC SYSTEM FLUES & VENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NFPA 54 (LATEST EDITION).
20. PROVIDE AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8.
21. COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM.

HVAC - KEYNOTES

- 1 THERMOSTATS. (TYPICAL WIRING FOR EACH THERMOSTAT) SEE VS1 SHEET
- 2 TAPERED CONCENTRIC FITTING. TYPICAL.
- 3 CONDENSATE DRAIN, REFER TO DETAIL 1/M1.
- 4 12"x12" DUCT W/ ELBOW FROM "R2" TO JUST ABOVE THE CEILING PLATFORM.
- 5 WALL CAP (MOUNT BOTTOM AT 10'-0" A.F.F.) 500 CFM EXHAUST.
- 6 SEE PARTIAL ROOF PLAN ABOVE FOR CONTINUATION. TYP.
- 7 CONCENTRIC WALL INTAKE/EXHAUST VENT. REFER TO DETAIL 6/M2, TYP.
- 8 INTERLOCK EACH MOTORIZED DAMPER'S OPERATION WITH THE RESPECTIVE ECONOMIZER AT EACH PURCHASE. REFER TO SCHEDULES AND DETAILS ON SHEET 1/M2 FOR MORE INFO. (TYPICAL).
- 9 WIRE FROM NEAREST LIGHT FIXTURE. DAMPER TO BE IN OPEN POSITION WHEN LIGHT IS ON OR IF ECONOMIZER IS OPERATING. TYPICAL.
- 10 30" LENGTH OF 24" x 24" DUCT. OPEN ENDED.

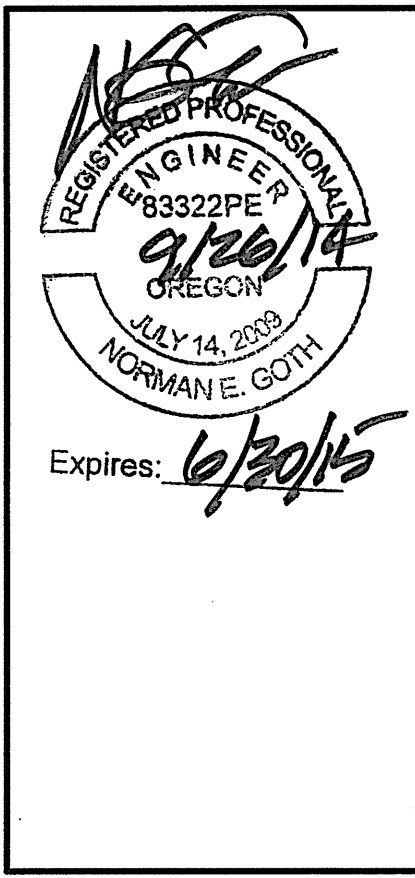
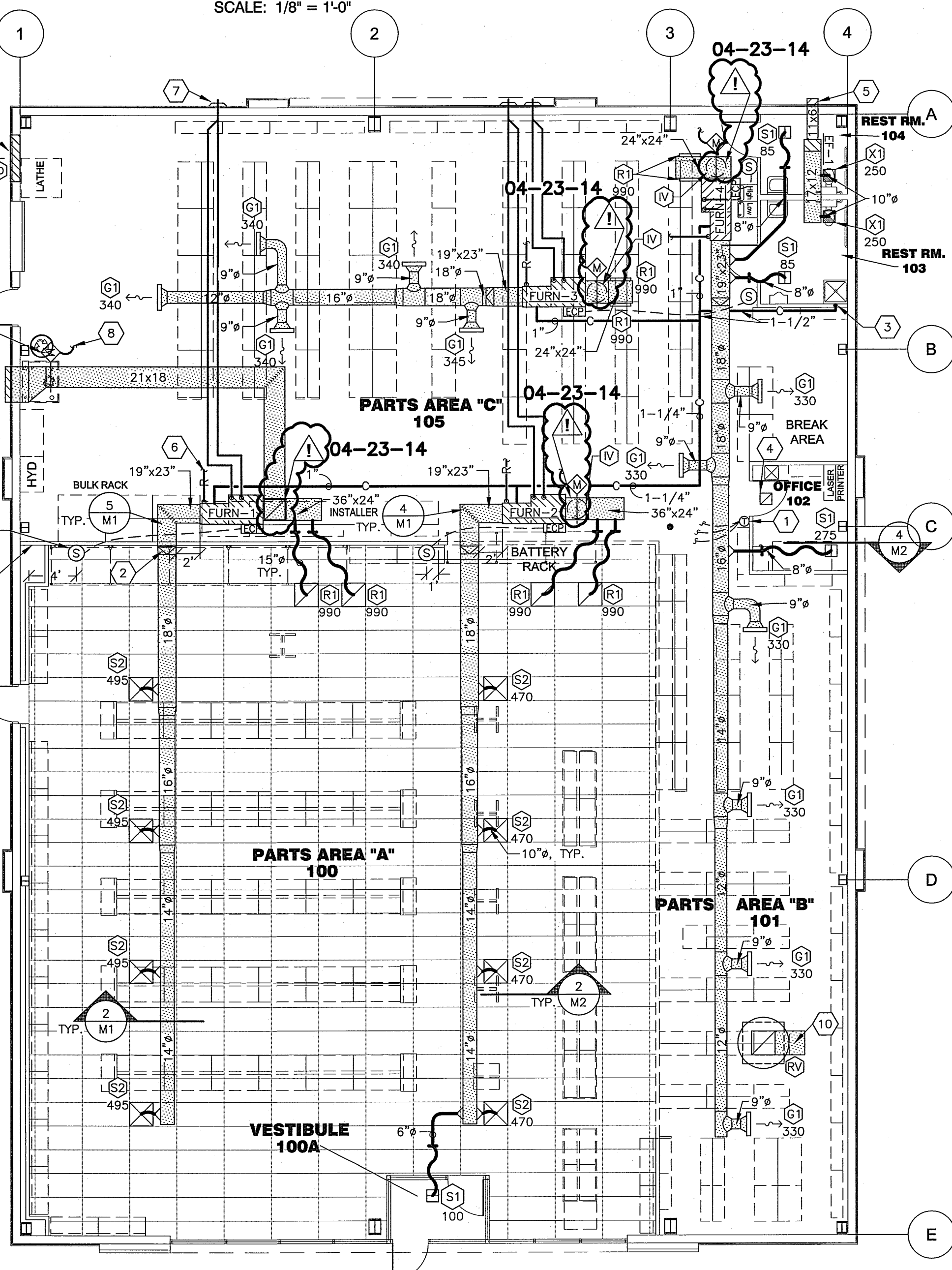
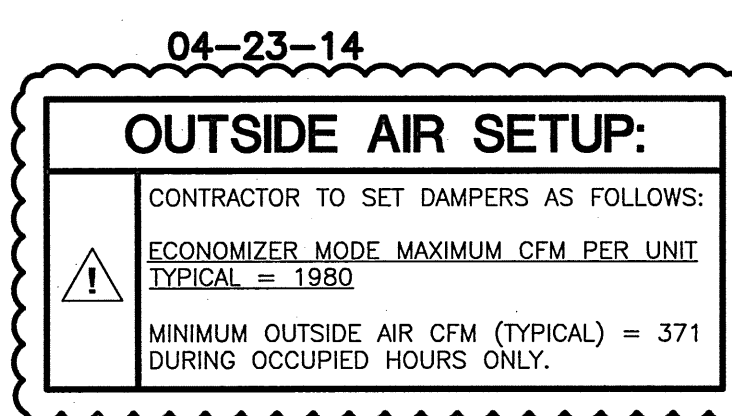


COMBO RELIEF LOUVER & DAMPER. SEE DETAIL 7/M2. 4,000 CFM MAX. EA. PURGING 100% ECONOMIZER MODE. TYPICAL OF TWO(2).

NOTE: BOTTOM OF HVAC EQUIPMENT AND DUCT WORK SHALL BE AT 12'-3" A.F.F. MINIMUM.

SEE VENSTAR S.O.W. FOR SENSOR LOCATIONS. TYP.

METAL WALL STUDS AT 24" O.C. HVAC CONTRACTOR SHALL ROUTE NEW DUCT BETWEEN METAL WALL STUDS ONLY.



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